DOCUMENT RESUME

ED 184 755 RC 011 933

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TITLE Learning in Eden: The Philosophy of Outdoor Education of the SCOPE Outdoor Learning Laboratories Program.
INSTITUTION Long Island State Park and Recreation Commission, N.Y.; New York State Office of Parks and Recreation, Albany.; SCOPE Outdoor Learning Laboratories, Kings Park, N.Y.
PUB DATE 75
NOTE 21p.; For related documents, see RC 011 933-7.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Philosophy; Elementary Secondary Education; Environmental Education; *Experiential Learning; Guidelines; Instructional Materials; *Learning Processes; *Outdoor Education; Program Content; Sensory Experience; *Teacher Responsibility; Teacher Role; *Teaching Methods
IDENTIFIERS New York (Suffolk County); *SCOPE Outdoor Learning Laboratories

ABSTRACT

Designed as a guide in inservice preparation and as a reference in planning and conducting outdoor lessons, this statement of philosophy will help teachers who participate in the Outdoor Learning Laboratories program understand the aims and methods of outdoor education. To educate children is, of course, the ultimate purpose of outdoor education. It is hoped that professional understandings of the educational processes involved will help children learn school subjects through outdoor experiences and especially help them become deeply aware of the importance and beauty of the natural environment. Outdoor teaching differs from classroom teaching by creating an experiential relationship between the student and the material to be studied and by creating informal, personalized patterns within the learning situation. Outdoor education as most commonly practiced supplements those disciplines which pertain to environmental studies but should encompass aspects of the social sciences and humanities as well. Lesson plans should be designed to involve the child's body and each of his senses. While experiential learning may involve activation of the rational faculties and memory, as does classroom learning, to be truly experiential it must also activate other inner powers such as imagination, emotion, insight, and judgment. (NEC)

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Learning in Eden

THE PHILOSOPHY OF OUTDOOR EDUCATION
OF THE SCOPE OUTDOOR LEARNING LABORATORIES PROGRAM

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SCOPE

Outdoor Learning Laboratories

Expanding the Classroom into the Natural World

LEARNING IN EDEN

THE PHILOSOPHY OF OUTDOOR EDUCATION

OF THE SCOPE OUTDOOR LEARNING LABORATORIES PROGRAM

Prepared for
SCOPE
by
Jerome O'Grady

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Outdoor Learning Laboratories

Expanding the Classroom into the Natural World

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LEARNING IN EDEN

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INTRODUCTION

The unexamined life is not worth living.

--Socrates.

Believing that life can be examined through experience of reality as well as through classroom media, SCOPE has offered outdoor education service to Suffolk County school districts for several years. A due regard for questions asked by an increasing number of school districts and participating teachers prompts the SCOPE staff to make available a brief explanation of the Outdoor Learning Laboratories' philosophy of outdoor education.

School administrators may find this clarification of principles a help in their attempt to understand what is unique in outdoor education's contribution to the growth of the child, how outdoor education parallels and supplements but differs from classroom education, and why outdoor education attracts the efforts and support of so many.

The primary function of this explanation, however, is to help teachers who participate in the Outdoor Learning Laboratories program understand the aims and methods of outdoor education. It is designed for their use as a guide in inservice preparation and as a reference in planning and conducting outdoor lessons.

To help children is of course the ultimate purpose of explaining outdoor education. It is hoped that professional understandings of the educational processes involved will help children learn school subjects through outdoor experiences and especially help them become deeply aware of the importance and beauty of the natural environment. For it may be questionable whether life in an unexamined world is worth living; in any case, it may be said that children have a prime right to their most basic inheritance: their earth. We can give them opportunity to examine it, experience it.

Although we do not bequeath our children a paradise, we have salvaged a few places of earth's innocence for them; studying such a place, they study a good book, a book of life. In our knowledge of good and evil, we cannot return them to man's innocence, but we can let them look in at the gates.

1

TEACHING OUTDOORS

Experience is the best teacher.
Seeing is believing.

--Contemporary sayings.

Nihil est in intellectu quod non priusquam in sensu. (Nothing is in the mind which was not previously in the senses.)

--A saying of the medieval scholastics.

"What does the child get out of it?" stands as one of the first questions asked by the teacher contemplating a venture into the Outdoor Learning Laboratories program. "What does he get out of SCOPE outdoor education that I can't give him in my own classroom?"

A clear answer to this question will point out a major road in education; muddled answers will lead only into dead ends of frustration. Outdoor education is variously misconceived--to some it suggests woodcraft and camping; a few confuse it with survival training; many think of it as field tripping. Finding the clear road will prove to be worth careful inquiry into the differences between outdoor education and classroom teaching.

How Outdoor Education Differs from Classroom Teaching

Outdoor education supplements classroom teaching; the general aims of outdoor education are identical with those of the "indoor" school. For any one age group or grade level the content planned for outdoor learning is the same as some part of the content incorporated in the regular curriculum. Outdoor education, however, aims at creating a different relationship between the child and the material than the relationship usually established within the classroom.

Conceptualizing Models / Experiencing Realities

Outdoor education is experiential. A child may find out about population density by making his way through city crowds; a child may find out about Hispanic culture by participating in a procession and festival. Outdoor education takes place in the plane of actual contact between the child's self and the real world outside himself.

Education within a traditional classroom usually relates the child to models of reality rather than to reality. The media through which these models reach the child include the teacher's speech, the chalkboard, maps or other projections, and especially the printed word. The child relates to models of reality fashioned in these symbolic media. A child may learn about population density in terms of numbers or about Hispanic culture through statements.

The many and great advantages of classroom teaching through abstract models have firmly established it as the most practicable mode of education. One obvious advantage is the ease with which models can replace realities which are difficult or impossible to experience directly--the solar system, for example, or ancient civilizations, or the atom. Another advantage is the convenience of orderly categories--abstractions more easily sort themselves out into intellectual disciplines than do realities. A third advantage is the readiness with which the classroom lends itself to organization, administration, and discipline. These and other advantages have brought ever-increasing areas of education under the direction of the classroom teacher.

The strengths of the classroom mode, however, also make for weaknesses. Important factors in education which might be slighted within the classroom's four walls can be brought into full play outdoors in the real world.

Cognitive / Sensory-affective

The efficiency with which the classroom covers all types of reality is primarily achieved by enabling the student to formulate concepts of realities, but the intellectualizing process tends to remove the child from sensory contact with, and affective response to the realities themselves. Outdoor education compensates by providing concrete objects to stimulate sensory awareness and enrich emotional responses.

Asked "Where is the sky the bluest?", most adults and students over 12 will try to "problem-solve"; few will answer immediately, like young children, or go to the window to look at the sky itself for the answer. Most people have been taught by formal education to think but not to use their eyes.

Outdoor education attempts to relate the student to the materials not only through his intellect but through his senses, emotions, and imagination; sensing and feeling, judging and valuing, are as important in the outdoor education experience as cognitive activity. "Learning" in a schoolroom primarily signifies activating the mind--the rational powers and memory; "learning" through outdoor experiences signifies activating all the human powers--the person as a whole organism.

Subjects / Object

A second strength of the classroom mode is the rational division of all learning possibilities into organized areas developed into subjects or disciplines, but this division tends to overlook the interrelatedness of all things and to obscure the complexity of any one thing. Outdoor education tries to redress the balance by focusing upon a particular object and experiencing it in all or many of its relationships and facets.

While a classroom day divided into subject periods has proven effective, it is highly unlikely that in a day's schedule any one reality--let us say a maple tree--would be treated in the earth sciences period as a producer of oxygen and habitat for birds, as an issue between conservationists and furniture manufacturers during social studies, and in reading and art periods as a thing of beauty. Even if the maple were treated in each period, it would still not be seen whole. As a result, many graduates of the schools live in a fragmented world.

An outdoor education experience offers opportunity to encounter one reality from many avenues and thus to discover the integrity as well as the complexity of reality and mobilize the important processes involved in the integration of experience.

Formal / Informal

Another advantage of the classroom, as noted, is the readiness with which the classroom lends itself to organization, administration, and discipline. Recently, however, many educators have found it advisable to modify and even minimize the formality of the traditional physical and procedural structurings of the classroom, and some of these educators view outdoor education as an important option offering an opportunity to informalize education.

To take a number of children onto the city streets or into the woods and expect all of them to perform the same activity at the same time, to pay attention to one single presentation, and to speak only when called upon would be as unthinkable as to expect them to seat themselves in orderly rows on curbstones or logs.

Transforming the student-to-subjects relationship into a child-to-object relationship sets up a dynamism which transforms the educational structure. The dynamics of either mode of relationship between student and material will create expectations appropriate to that mode. The structuring of the educational situation in the classroom mode will be changed into a different structuring outdoors.

Outdoors, the physical surroundings by their nature break up rigidities. The teacher must move from group to group, from individual to individual, from one type of activity and response to another type, from the approach to a reality by way of one discipline to another approach from a different discipline, and quite often from plans to improvisations.

It is important to realize, however, that teaching outdoors does not mean letting children run about aimlessly. In a successful outdoor education experience the dismantling of classroom structurings occurs only to make new structurings possible. Instead of the teacher-presenting and student-attending pattern, there arises a pattern of teacher-and-students attending and real-object presenting itself. Teacher and students together explore crowded city or Latin festival, the teacher becoming less a professor and more a resource person, the children becoming less passive and more inquiring. Among the students, the pattern of individuals working alone or competing is likely to give place to a pattern of group members interacting and cooperating.

Indoors or out, the effective teacher creates a structure. Outdoors, structure is less apparent and more informal than indoors.

Summary: Whole Child Related to Whole Object

It can be said that outdoor education aims at supplementing classroom teaching by adding experiential relationships between child and reality to the intellectual relationships achieved within the classroom. First, the classroom tendency to treat the student as a learning mind is supplemented by activation of sensory, emotional, imaginative and evaluating powers--by treatment of the child as a whole organism. Second, experiences of the real world outdoors confront a reality from many points of view--a multidisciplinary approach helps integrate the image of the universe often presented piecemeal by the subjects taught indoors. In changing from the student-subjects relationship to the child-object relationship, outdoor education offers alternative structurings not only of the physical environment but of teacher-student and student-student interaction--it creates informal and personalized patterns within the learning situation.

Briefly, by providing informal access to the actual world, outdoor education relates a whole child to a whole reality.

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2

TEACHING ENVIRONMENTAL STUDIES OUTDOORS

When I heard the learn'd astronomer, . . .
When I sitting heard the astronomer where he lectured with much applause in the lecture-room,
How soon unaccountable I became tired and sick,
Till rising and gliding out I wander'd off by myself,
In the mystical moist night-air, and from time to time,
Look'd up in perfect silence at the stars.

--Walt Whitman

Although education outdoors can provide experience to supplement in-school teaching of any subject area of the curriculum, outdoor education as most commonly practiced supplements those disciplines which pertain to environmental studies. Environmental studies include sciences--natural sciences such as biology, and social sciences which are environment-oriented such as studies in conservation issues, local history, or American Indian anthropology. Environmental studies also include humanities--nature-oriented song, poetry, prose, art and photography, and values inquiry.

The program of the SCOPE Outdoor Learning Laboratories emphasizes environmental studies.

Outdoor Education as a Mode of Environmental Education

Classroom teaching through models of reality suffers from its weaknesses more obviously in environmentally-related areas than in other areas of study. The inadequacies of the text-book and laboratory approach to nature studies have induced most natural science teachers to take their classes out into the field. Many social studies teachers bring students into confrontation with aspects of the natural world, such as polluted waters, which have become issues of debate in society. Some humanities teachers bring children out of the building for better appreciation of nature literature and art. It is especially in these environmental study areas, where the need for first-hand experience is most acutely felt, that the Outdoor Learning Laboratories can serve the school.

Since the most immediate aim of the SCOPE outdoor education program is to fill the need for actual experiences of the environment, the Outdoor Learning Laboratory facilities have been located in natural settings in public parklands. The program is conducted with the cooperation and support of park commissions: the Parks and Recreation Commission of New York State, the Long Island State Park and Recreation Commission, and the Suffolk County Parks Commission. In addition, materials and equipment for environmental studies are stocked, and the programs developed by the staff are primarily environment-oriented.

Experiences of the Environment

It should be stressed that, in the Outdoor Learning Laboratories program, environmental realities are studied according to the principles of outdoor education, that is, experientially: as realities. The teacher does not exploit nature as a colossal audio-visual aid to a lecture; he humbles himself and walks into nature's places hoping that his knowledge, awareness, and sensitivity will help him and his charges attain genuine experiences of these places.

The teacher is not satisfied, as might be the case in a classroom, with a child's gaining understanding of a concept, such as the idea of wetlands as a life source. The teacher brings the child to a real wetland swarming with real living things--using the principles of biology to help the child experience this wetland intelligently, not using the wetland as an "example" of biological principles. The teacher aims at opening up genuine experience by providing sense impressions of the marsh and its life forms, creating in the child a matrix of images, stimulating feelings and emotions, and helping the child to formulate values: the goal is the growth of the whole child.

The teacher is not satisfied with having the child take notes on the biological species and processes observed. The aim is to enrich the child's experience of the marsh by having him approach it from the point of view of a number of disciplines besides biology--approach it for its possible use as a commercial site, perhaps for a candy factory, or approach it for its value in producing so many living things in so many varied forms. The goal is to open the totality of the marsh, or as much of it as he can manage, to the child.

The teacher is not satisfied with completion by the children of pre-determined activities. The aim is to inspire the children to explore the wetland (as far as safety will permit) and find things, including things apparently "off the subject", like perhaps an arrow head, hoping to free them to relate to one another by expressing their reactions and cooperating, and to relate to the teacher as to a resource person by coming to him with questions including many he is not prepared to answer: the teacher's method is to de-institutionalize, in-formalize the relationship between child and object.

In this way--treating the child as a whole and treating the object as a whole in order to open up a child-object relationship

instead of a student-subjects relationship--the teacher gives the children more than a biology field trip; he gives them an outdoor education experience.

Aims of Environmental Outdoor Education

An outdoor education experience of an environment can further in a new way the child's progress in many of the studies pursued according to the curriculum of his grade.

In addition, the experience of the environment can give the child something indoor teaching cannot give him--actual contact with nature. The child is given hours, days, of physical and emotional as well as intellectual involvement with an unpolluted corner of the earth and its life. The experience can give the child a glimpse into the truths of nature, the goodness and beauty of the earth, a glimpse into the primal condition of things before ugliness and evil.

How can a teacher plan an environmental outdoor education experience which will further the child's studies and enrich his response to nature? --By exploring the implications of the double principle of outdoor education: treat the student as a whole child and treat the environment to be studied as a whole object.

3

THE WHOLE CHILD: BODY AND SENSES

how should tasting touching hearing
seeing
breathing any--lifted from the no
of all nothing--human merely being
doubt unimaginable You?

(now the ears of my ears awake and
now the eyes of my eyes are opened)

--e. e. cummings

In the SCOPE outdoor education program, lesson plans are the teacher's own. The Outdoor Learning Laboratory staff provides teaching materials and guidance and closely supports the teacher but does not teach the students nor provide pre-scheduled or pre-packaged activities. Children benefit from retaining the close student-teacher association established in the school.

Practical First Steps in Planning

In preparing the plans, the teacher is concerned, first, obviously, with the needs of his students, keeping in mind individual differences and special needs such as those of disadvantaged students or emotionally disturbed children. Second, the teacher selects content areas from the regular school curriculum which can best be supplemented through outdoor education experiences. The excursion into the out-of-doors is not planned as a detour up a side path or into a blind alley but as a forward movement along the road of the student's learning career. Third, the teacher includes in the plans areas of study and types of activity in which he himself has particular interest and expertise so that guidance may spring naturally and spontaneously from personal resources.

Planning for the Whole Child

The Body and the Senses

The fact that the child is bodily present in, at, or near the "curriculum content" obviously constitutes the starting point for all outdoor education planning. This fact immediately rules out all plans for types of learning activity which could be undertaken as well or better if the child were seated in a classroom far from the object and it stimulates the teacher's imagination and ingenuity from the beginning to the end of planning. Providing a child with an experience - the goal of this enterprise - will be done through the body or not at all.

A good plan sets up specific occasions for student approaches through several or all of the senses and many opportunities for student exchange of comments about their sensory impressions. The teacher foresees opportunities to urge the children to look more closely, listen more carefully, touch things, and in some cases smell and taste things, and prepares to give prompt recognition to children who express sensory awareness.

Motivation for becoming observant and sensitive might come from teacher comments about the usefulness and practicality of the information derived from the habit of noticing one's surroundings. It might better come from comments about, and demonstrations of, the pleasure and satisfaction inherent in awareness itself. For instance, the teacher could have the children do exercises in correcting common misconceptions: ask them to determine the color of shadows; ask them to select an object in hand, such as a coin, of approximately the same size as the apparent size as a distant object, such as the moon; ask them to find a stone or rock of about the same weight as a bird, if they are fortunate enough to hold one in hand, or a handful of dry leaves.

To make sensory experiences conscious and educative, the teacher encourages children to verbalize them. Students talking to one another about what they notice are more likely to notice things.

Each of the senses deserves consideration.

Seeing

Helping children learn to see is largely a matter of helping them to focus attention on what is before their eyes--to look at instead of glance at something. Since our per-

sonal and social needs are usually fairly well met through vision limited to the middle distance and to objects of humanly manageable size, it is well to ask children to look closely at tiny objects and also to look steadily at vistas or panoramas. Have them, for instance, get down on their knees and find the chalices of moss, or have them stop on the road near the Sunken Meadow laboratory and gaze at Long Island Sound and the Connecticut hills.

Hearing

Like listening to jazz or classical music--each instrument or melodic line and the harmonic orchestration of the whole--one can listen to the sounds of nature individually and all together. Children can be taught to bring an individual sound from the background of hearing into the foreground; for example, they can be asked to listen to the crickets during the day and notice whether the pitch changes with temperature, or to the creak of snow underfoot and whether it changes with temperature. Listening with the eyes closed is a good exercise, but listening while watching, if the sound source is in sight, provides a richer experience, as when one has the good luck to both hear and see a mocking bird singing passionately while springing three or four feet up and down at his high perch. Exploratory listening also helps add a dimension to an experience--tapping a log, shaking a pine cone, tossing a rock into a pool to sound its depth.

Touching

Touch, perhaps the most direct of the senses, teaches infants three-dimensionality and, with kinesthesis, distance; school-age children can continue to learn through touch. If a youngster finds a dead seagull on the beach and takes the wingtips in his hands and extends the wings fully, he learns the wingspread through muscle tensions in his arms and he will never forget how big a seagull really is. Touch teaches the eyes to recognize textures--the grittiness of sandy soil, the slickness of clayey soil, the lumpiness of good soil. A child can be sensitized to the degree of becoming able to point directly into a breeze by the feel of the moving air on his ears, or able to distinguish between an ant and a fly on the back of his neck by the feel of the hooked feet or the feel of the adhesive feet.

Tasting

Although caution and guidance are needed if children are encouraged to taste things outdoors, tasting can add interest to some experiences. There are probably few ways of convincing a child of the bounty of the earth as effective as taking him berry picking. Taste, better than anything else, can teach a student that the sea is salty. On a hot day a youngster will appreciate the thirst-quenching taste of yellow sorrel. Probably the most satisfying use of the sense of taste is to add wild nuts, fruits, berries, herbs, or edible roots to the menu of a cookout or picnic lunch.

Smelling

The orchestration of aromas in nature, though subtle, is almost as diverse as its orchestration of sounds, even to us human beings who are less well gifted in olfactory sense than any other species with the possible exception of some birds. There are many pleasant smells for the child to experience--the smell of flowers, of grass, of the sea. Morning has a smell, noon has a smell, evening has a smell; winter, spring, summer, fall --each has its smell. There are pungent seaside smells, cool lakeside smells, warm inland smells. Snow, lightning, turned earth, sun-baked rock--all have smells. A sensitive child, blindfolded, can tell much about where he is through smelling; if in a woods he can tell whether the trees are evergreen or deciduous. He learns that the stenches emitted by certain animals are defensive. The teacher should be aware that some children have been culturally conditioned to react negatively to certain smells, such as the smell of low tide, or of manure, as they have been conditioned to react negatively to the taste of certain insects. It might be well to explain the cultural origin of these reactions. In widening the world of odors and smells in the child's awareness, the teacher will be working in an educational field which otherwise receives little or no cultivation.

Plans well designed to involve the child's body and senses outdoors will probably differ considerably from classroom lesson plans. For teachers new to outdoor education, the need for adding education of the physical faculties to education of the inner or more spiritual faculties cannot be over-emphasized. Experiential learning begins in the body; without the body, it cannot happen.

4

THE WHOLE CHILD: INNER POWERS

> The mind is its own place; it makes
> a Heav'n
> Of Hell, a Hell of Heav'n.
>
> --John Milton, Paradise Lost

While experiential learning may involve activation of the rational faculties and memory, as does classroom learning, to be truly experiential it must also activate other inner powers such as imagination, emotion, insight, and judgment.

Memory

In regard to an outdoor education experience, the teacher plans to guide the child

in his use of memory in two ways: by helping him memorize points of information needed to facilitate the outdoor activities, and by helping him to remember the experience itself.

Most of the memorizing can be planned as classroom work to be done in preparation for going outdoors. If it is necessary, for instance, that the child be able to identify plant and animal life forms in a marsh, the information can be presented ahead of time through traditional classroom models. During the actual outdoor activities, memorization-type exercises will tend to conceptualize and vitiate the experience. Beware especially of classification terminology.

Remembering experiences, like noticing things, is helped by conversation. The teacher encourages the children to talk to one another about whatever they find or experience because conscious retrieval of an event when it is fresh in the mind, especially verbalized retrieval, reinforces permanent retention. To facilitate spontaneous communication, the class may be broken into small groups, groupings based if possible on natural friendships. The teacher may ask for oral reports, in some cases written reports after the experience.

Remembering an experience is further strengthened by object-oriented activity. Taking a press of tree bark may imprint the texture of the bark on the student's memory more lastingly than on the press material. Aesthetic activity is a major factor in retention; a student will not easily forget something he makes--a collage of sea shore findings, a mobile made of pine cones, nuts, and seed pods.

Imagination

Awareness of his sense impressions will of itself enrich the child with hundreds of varied images and greatly increase his capacities for response. In addition, the scope of his experience can be further broadened if his imagination is challenged to leap from perceptions to possibilities, or from actualities to fantasies. --What will this wintry skeletal tree look like in June? --What would this shore be like if covered by an oil spill? --What would happen to this frozen pond if ice sank instead of floating? --Can you put together found objects and create a man-eating plant that might grow on some science-fiction planet?

Younger children can role-play plants and animals and act out phenomena such as the food chain. Older children can act out social situations like Indians giving environmental know-how to settlers and settlers adapting to natural conditions and using natural resources. Besides drama, other arts media offer ideal means through which children can express their imaginings.

One fruitful imaginative act is to imagine that a thing does not exist; many consequences of an absence will throng into speculation and discussion. A yet more powerful imaginative act is to imagine that nothing exists.

Stimulating the imagination is as important in outdoor education as stimulating the senses, for it seems that some imaginative ingredient serves as catlytic agent in the activation of further inner powers--emotion, insight, and judgment.

Feelings and Emotions

Plans for stimulating emotions are difficult to specify, although it can sometimes be foreseen that certain objects to be encountered or activities to be engaged in are likely to induce predictable reactions. Situations can be managed, however, so as to permit freedom and variety of response and to encourage emotive behavior and expression.

The teacher can make students conscious of their feelings by questioning them about their reactions and by urging them to verbalize their self-awarenesses. For instance, when a child says he likes something, the teacher might elicit whether by "like" he means "admire," "enjoy," or "love."

Without losing dignity, a teacher can set the tone for the group through informally and naturally externalizing spontaneous feelings, reacting somewhat less restrainedly than indoors. The teacher can communicate through body language that whereas indoors, an instructor must be to some extent the center of attention, outdoors, he joins with the children in attending to natural objects and in responding with surprise and curiosity, care and concern, pleasure and delight, wonder and reverence. The teacher thus sets the children free to feel and to express what they feel.

Artistic expressions give children opportunity to embody and communicate their feelings--making up poems, creating rhythms with natural objects, designing and executing dances, producing photographs.

The Mind

All of the various types of intellectual acts can be elicited to make an outdoor experience more meaningful. In planning outdoor teaching, however, the teacher must always be alert to the ever-present danger of subverting into a mere intellectual exercise what should be a living experience.

Roughly speaking, it could be said that curriculum content knowledge is to be brought to the outdoor experience rather than derived from the outdoor experience. Nomenclature, as indicated earlier, is better learned in the classroom as preparatory work than in the field; the same holds for processes, like photosynthesis, and for general principles such as the principle that all life forms are interdependent.

Gaining insights is a more appropriate form of intellectual activity for outdoor education than formulating concepts like those just mentioned. For example, an in-

sight into the almost miraculous food-producing power of photosynthesis might be gained by a child probing into the loam under dead leaves to discover its many forms of life and comparing this mini-world to the comparatively unpopulated world uncovered by probing into bare sand. Even in this example it should be stressed that the teacher has provided the concept of photosynthesis in order to make the child's experience of the loam and sand more meaningful; the teacher has not manipulated the child's experiences of loam and sand to provide data for the conceptualizing act.

Similarly, the teacher does not confront the child with a natural phenomenon so that the child may use it to hone up his reasoning powers, inductive and deductive; the child is asked to bring his reasoning powers to the phenomenon to experience it more meaningfully. The teacher is pleased when a child questions a phenomenon, hypothesizes about it, and inquires into it further, for these intellectual acts will deepen and broaden his experience. For instance, if a child asks why the fiddler crab carries pellets of sand several feet away from his burrow while digging it, the teacher has opportunity to suggest that the child guess at a possible reason then try to check it out; the teacher is more interested in the explorative quality the child is adding to his experience than in the rightness or wrongness of any answer the child might advance.

Values

Planning to stimulate the complex of powers involved in value formulation may seem an impossible undertaking. Values are personal, subjective, and largely unconscious; the processes by which values are formed or transformed are little understood. Furthermore, the society of which the school is an instrument is today engaged in a profound reassessment of traditional values and has only recently begun to formulate values in regard to the natural environment. It has been said that neither the rational Greek tradition nor the ethical Hebrew-Christian tradition on which our culture is based seems to attribute much worth to the non-human components of creation; some in fact feel we are likely to find the best expressions of environmental values in non-Western forms like oriental painting and poetry or primitive literatures and liturgies such as those of the American Indian. Thus the teacher is confronted with both the professional problem of how to instill values and the ethical or political problem of determining which values a divided society wants to instill.

It seems fair for the teacher to assume that by the fact of having elected to participate in the outdoor education program the school district implicitly authorizes instilling environmental values in the children. Even on this assumption, however, the teacher must guard against one-sidedness in presenting controversial issues; the children should be made aware of man's need to exploit nature and of the resulting dilemmas facing society in regard to energy and fuels, waste disposal, and the use of land and other resources.

How to instill values through teaching remains a difficult problem. We do know that the conviction of worth is derived only in part, usually in small part, from rational processes such as clarification of ends and means. The process of determining worth is influenced by images, especially in the form of symbols and stereotypes, by feelings and emotions ultimately related to pleasure and pain, and by memories, especially associations. In other words, value formulation seems to be an experiential more than a logical process.

In this respect, the teacher is more fortunate when engaged in outdoor education than when teaching in a classroom; he can shape all the factors in the outdoor lesson toward experiential formulation of values.

One of the best and simplest ways to take advantage of the experiential situation is to set a personal example. The teacher can very obviously avoid stepping on a plant, for instance; a judgment of the worth of the plant can be conveyed in facial expression, body language, and verbalization.

A similar way is to induce value-implying student behaviors and activities such as conforming with conservation rules or using care with devices like nets or tree borers. Students might also be encouraged into exerting themselves to achieve an end that will be felt worth the effort, like climbing a hill to see the view from the top.

The commonest means used in the attempt to formulate values is discussion. Brief small-group or large-group discussions of student experiences and issues related to them can be held outdoors in "powwow" fashion. Discussion, however, should not be forced toward pre-conceived conclusions. The wise teacher keeps discussion permissive and open-ended, attending not only to the child who wants to save the marsh but also to the child who wants to use it as the site for a candy factory. The teacher's major aim here is to provoke judgmental activity, not to dictate specific judgments. He recognizes that discussion is not only an intellectual activity with a more or less logical content but, perhaps more important, a social activity with a content of communicated feelings about the worth of things. In fact, if he has succeeded in getting the children to express and exchange a great many worth-feelings during the course of their activities, he may well shorten or omit the discussion period.

Just as the values of cultures are clarified and embodied in their art, the value-experience of the child can be clarified and embodied in his creation of a poster, a quotable saying, a role in a skit, a song or other art form.

5

THE WHOLE OBJECT:

APPROACHES THROUGH THE SCIENCES

> All science is the search for unity in hidden likenessess. . . . The scientist looks for order in the appearances of nature by exploring such likenessess. For order does not display itself. . . . Order must be discovered and, in a deep sense, it must be created.
>
> Jacob Bronowski,
> Science and Human Values.

The Environmental Object

Depending on site availability, the teacher himself selects the object of the proposed outdoor education experience.

The environmental object will probably be a woodland, a salt water shore, a river or fresh water pond, or a tidal marsh. These ecosystems available to the Outdoor Learning Laboratories lend themselves to varied but unified experiences. An entire park would be too complex an object; the pine tree alone could be somewhat restrictive; a heterogeneous assortment of plants, animals or areas would fragment and dissipate the experience. Obviously, listing a random series of outdoor activities without object would constitute no outdoor education plan.

As well as treating the child as a whole by planning to activate many of the child's powers in the outdoor experience, the teacher treats the ecosystem as a whole by planning to approach it through as many avenues as possible. Varied resources from the sciences and humanities are exploited for whatever they can contribute to an environmental experience. Both the natural sciences and the social sciences offer contents of information and processes of inquiry which can open facets of the environment to the child's experience.

Careful consideration of the object, let us say the tidal marsh in Sunken Meadow State Park, will suggest resources that might be drawn from the natural and social sciences. Nothing is better than a firsthand scouting of the marsh itself to suggest ideas for use of the contents and processes of the various sciences. The teacher will of course become informed about the marked seasonal differences in marsh conditions and will determine as early as possible the season or seasons of proposed class sessions.

The Natural Sciences

In preparation for the outdoor lessons, the teacher might list the more common or obvious life forms he expects the students to encounter in the marsh and make use of biology resources through which to present species information to the students. It would be well for teacher and students to become familiar with techniques and processes used in the biological sciences, like seining, plant pressing, and use of the microscope.

Watching beach grass draw arcs that are sometimes full circles in the sand, seeing how far reeds will bend before springing back into the wind, observing seaweed opening and closing in the currents, noticing the varied modes of transportation of seeds--such sights will help the student experience the dynamic vitality of the marsh plants. Getting the children to focus on the dynamic aspects of marsh life will be easier and probably more fruitful than having them study static elements. The teacher can have students note the different forms and shapes assumed by a bird in flight, the differing flight movements of redwing blackbird and marsh hawk, the hopping of some birds and the walking of others. The movements of a raccoon can be traced by tracking him, and the children can guess at his destinations and purposes. Scuttling back and forth (or from side to side), the fiddler crabs are perhaps the most interestingly busy creatures in the marsh. Observation of these and the many other forms of local animal behavior will contribute directly to the student's awareness of the intensity of life in the marsh.

Geology and meteorology will also yield resource contents and learning processes. A boy can use his shoe as a glacier, for example, and shove up a ridge of sand and gravel to represent Long Island, and a girl can pour a little water on the crest to trickle down and form a pool at the base of the ridge--the marsh. Children can observe a great many differences in the marsh in different weathers on the same day or on different days.

Astronomy can help furnish insights into the periodicity of marsh life. Using shadows, the children can estimate the vertical angle to the noon sun in different seasons and the horizontal angle between rising and setting sun in different seasons and thus appreciate the great difference in the amounts of light and heat available to marsh life from winter to summer. The position of the moon in the sky relative to the sun will help them understand neap and spring tides, and the turning of the earth

on its axis will help them understand the twice-daily high and low tides which are, in a sense, the heartbeat of the tidal marsh.

Reference to the tide serves as a reminder that in outdoor education it is impossible to teach the sciences as separate subjects because they inevitably overlap one another and coalesce when used to aid in the understanding of any one real object which might be put under scrutiny. As we see, determining the causes of the tide requires astronomy; the tidal shore line, geology; life-form adaptations to the tide, biology. For computations of the tide we need mathematics, for tidal hydrodynamics we need physics, and for the tidal substance, sea water, we need chemistry.

The teacher need not be mind-boggled by the amount of scientific knowledge he needs nor by the number and variety of pieces of scientific equipment he needs, because a little goes a long way. Outdoor education does not treat children as graduate students in science but as young people eager to experience their world. With the help of the Outdoor Learning Laboratories, the teacher selects the science resources which suit the purpose.

Scientific devices frighten living things away. The dream of the outdoor educator is not to see children disrupting a tidal marsh with nets and magnifying glasses, although these items may be helpful in the early phases of the experience. One's dream is to see children stopping, standing empty-handed and still, looking, listening, taking into themselves the living wonder which is this marsh.

The Social Sciences

The life form which exerts control over the marsh or any site is, of course, man. The marsh as an object of social interest and control would be explored by the students if the teacher were to suggest that they might want to change something in the site and ask how they would have to go about making the change. If, for instance, students wanted to remove the culvert from the marsh in Sunken Meadow, they would soon find that they would have to deal with the authority of New York State's Parks and Recreation Commission and ultimately with the state legislature through petitions, lobbying, and other social action. After examining the culvert and its apparent purposes, students who believe in its usefulness might argue in its defense, role-playing park commissioners or legislators. Students who believe it should be removed might argue against the culvert, role-playing petitioners or lobbyists.

Research into the local history might turn up some interesting stories. For instance, it is said that Captain Nathan Hale, disguised as a teacher, penetrated the British lines encamped on the ridge above the marsh (near the location of the Outdoor Laboratory) and was captured a few miles away. Student strategists might plan how best to deploy guards to make the best use of the marsh as a "moat" protecting the ridge, and other student strategists might plan how best to deploy reconnaissance squads to scout the defenses.

To military control or political control should be added some activity relevant to commercial control. Legend has it that part of Smithtown, the township in which Sunken Meadow is situated, was purchased from the Indians by a settler who rode a bull around a large area; the bronze statue of the bull might have been seen by some of the students on their way to the park. The marsh, too, was peacefully purchased. It could theoretically be sold now by the state of New York to a housing developer or to a manufacturer of candy. Two groups of students might explore the marsh from the point of view of the interested parties in either a sale by Indians to settlers or by the state to a candy manufacturer.

After some study of Indian lore and customs, some students might set up an Indian village beside the marsh in order to make use of its food and defense potentials, thus seeing the marsh as a resource for survival. With preparation, some students could find and debate environmental issues implicit in the marsh, including the issue of whether students should be allowed to study the marsh.

Research into social studies resources to prepare for these types of activity is best done in school, and follow-through discussions or reports can be projected for in-school continuation of the outdoor experience; however, on-site exploration of at least one aspect of the environmental object viewed as a social concern should be included in plans for the outdoor experience.

Although it is important that the child as an individual see the vitality and wonder of the marsh, it is also important for him as a citizen to see that the marsh is a heritage preserved for him by his society in spite of man's need to exploit nature. The teacher can help the youngster see that this vital and wonderful marsh is a responsibility which he, a citizen, shares with other residents of Suffolk County and New York State and with all Americans.

6

THE WHOLE OBJECT:

APPROACHES THROUGH THE HUMANITIES

> And God saw everything that he had made, and, behold, it was very good.
>
> --Genesis

> Now the Mother Earth
> And the Father Sky,
> Meeting, joining one another,
> Helpmates ever, they.
> All is beautiful,
> All is beautiful,
> All is beautiful, indeed.
>
> --Navajo song.

Beauty and goodness are the concerns of the humanities, as truth is the concern of the sciences. In making use of the resources of literature and the arts to help children experience whatever of goodness and beauty may exist in the environmental object, outdoor education reaches toward fulfillment of the child as a human being.

The daily pursuit of survival and affluence, different from but not particularly higher than the pursuits of the animals, is transcended for occasional timeless moments when a person experiences love, or worship, or satisfaction in a thing well done or well made, or contemplation of a thing of great splendor or an act of great honor. It is in moments like these that one is living one's humanness; it is on this level, this human and humanizing level, that the humanities operate.

What all effective works of art, literature, philosophy and religion have in common is that they induce a higher state of awareness or consciousness; to achieve this the artist selects and in some fashion imitates real events or real things encountered in actual life. Thus the ideal humanist would be a person so well schooled in vision by these artists as to be capable of leaving all art behind him and discovering his fill of beauty and goodness in the real world.

In like fashion the teacher uses art to open the eyes of children so that they can then turn and see some of the beauty and goodness that lie before them in reality. In an art or music or humanities class the teacher hopes that the students will return again and again to the arts as the schools of sensitivity; in outdoor education, the teacher wishes to turn the child as soon as possible toward the real world.

The teacher does not ask the children to carry a portfolio of nature photographs or book of Audubon prints into the tidal marsh. In the preparatory stage, the children are asked to study the photographs or prints in order to learn to see what is to be seen. To further help them when they first arrive at the marsh, the teacher asks them to take snapshots or draw pictures. But in the end he hopes the children will go into the marsh and, without portfolio, book, camera or pad, see the marsh.

The humanities can be used as teaching approaches by way of their contents or their processes. Approaches to the object through the content of the sciences--facts and principles--are paralleled by approaches through the contents of the humanities--works of art and literature, with related information. Approaches through scientific processes--techniques of inquiry--are paralleled by humanistic processes--techniques of creation. First, ordinarily, would come the contents or works, which ask for audience-type activities from the student--reading a poem or story, looking at a painting or sculpture, hearing a song. Second would come the processes, creative acts asking for artist-type activities; these include not only physical skills like the ability to handle a brush but also sensitivity skills such as ability to see the warmth in warm colors and the coolness in cool colors. Creative activities can take place while students are on site or immediately after they leave the site. Back at school, additional activities will both test and reinforce remembrance of the experience.

The children's last look at the marsh ought to be free from art (and from science). To achieve this culminating moment, the teacher may have had to use a number of resources selected from the range of humanistic works: painting, or drawing with charcoal or crayon, or collage; photography, or possibly film making; sculpture, or assemblage; music, with song or found-object instrumentation; the drama, skits, role-playing; the dance, or miming; poetry; fiction; non-fiction including the many great nature periodicals; philosophy in the form of philosophizing (not philosophy reading); and perhaps religion.

The teacher will find that by a few efforts on his part the sensory awareness described in an earlier chapter can be elevated to the higher plane of awareness and consciousness on which humanistic experience occurs. This elevation of the physical experience into an aesthetic experience is happening when a child says a bird sounds melodic or a reed sways rhythmically or the pursuit of a large bird by a small bird is dramatic. Greater efforts may be required--and may be proportionately more rewarding--with children who have been culturally disadvantaged.

The inner powers too can be brought to transcend everyday operation. Pictures of plants and animals shown to children in preparatory sessions need not be of the analytic

type found in biology books but can be of the aesthetic type found in the collections of Audubon and other nature painters or in collections of the works of today's great nature photographers; these works of art will help the child formulate rich images of the species they encounter and gain insights into form, pattern, grace, and color.

Preparatory factual information about living things can be supplemented by fiction, although it should be made clear to students that the anthropomorphism in animal stories is a fictional component. Then, on site, a little girl might smile at the fiddler crab as a comic character, which in a way he is, or a boy might feel that a fallen chick is pathetic.

Values formulation readily rises beyond the pragmatic to the humanistic level. In fact, children are quite embarrassingly prone to show revulsion against the pragmatism and materialism of adult American society. Almost any social studies resource employed will furnish material for the shaping of humane values if the teacher succeeds in establishing close contact between the child and the thing in nature which is at issue, especially if it is a living thing. The childish glee of a student discovering the sandpiper-like clapper rail, its sleeping during high tide hours instead of at night, its clumsy but skillful swimming, its clockwork running through tunnels under the grasses, its scampering ahead of a pursuer without taking flight unless closely pressed, its hiding submerged under water with only the tip of a beak showing--the glee readily becomes exultation that this bird exists. The child's judgment as to the horror of destroying this marsh bird for the sake of making candy should be taken as evidence that he has had what can only be called an exalted insight into intrinsic value.

The powers of the young mind awakened by science are ready to understand the nature of scientific knowledge and to transcend the limitations of science. This readiness is often frustrated by ill-informed people who give children the impression that science now can , or some day will be able to, answer all questions. When a child asks why there are beach fleas, a true scientist will say he does not know. The answer is a mystery, part of the inherent mystery of the universe. A less humane science teacher might divert the student by telling him about the evolution and adaptation of the beach flea; perhaps he lacks the courage with which the true scientist, in the spirit of Darwin, faces the fact that species evolve by chance. The young mind is ready for the leap into the dark which the truly humane scientist will ask it to make; he will tell the youngster that he can pretty well explain how ninety percent of the species ever in existence have met with extinction, but not why they became extinct, nor why the beach flea, and we, survive. The human answer to ultimate mystery is awe, perhaps reverence, he will tell the child; dismissing or avoiding the question of ultimate mystery, he will say, is mindless, is unscientific and less than human.

To prepare the child for this bravely human transcending of science, the teacher might ask him to read the creation stories to be found in the traditions of many cultures.

Thus it can be seen that it is possible, through the resources of the humanities, to enable the child to lift himself and his physical and inner powers above the merely animal and practical level and respond to the environmental object as a human being responds. Also the sciences, natural and social, can be humanized; the total environmental experience becomes a human experience.

The capacity of children for this level of experience is more often underestimated than overestimated. The teacher who gives the humanities approach a good try will find that children will surprise him with the sharpness and profundity of their responses; the most surprising and gratifying responses may come from youngsters called slow learners or considered emotionally disturbed.

Experiencing some of the goodness and beauty of nature in the environment which he studies has a maturing effect on a young person. A child wholly caught up in experiencing the marsh merges with it, in a sense, dwells with it, inhabits it. At the same time, he recognizes that every living thing in the marsh is different from him, different in kind and different in destiny; the child is a stranger in the marsh, however sympathetic, an invader. As much as he has come to sense the interdependence of all life forms, he senses too that his form, the human race, has eternally severed itself from nature by becoming able to think. His friends the fiddler crab and clapper rail will never be capable, like the thinking species, of creating evil or ugliness; on the other hand, never will they be able to know themselves as a small boy can know them, nor be able, as a small boy is able, to know the ultimate mystery of the universe and guess at its meaning.

7

THE WHOLE LESSON

Gladly would he learn, and gladly teach.

--From Geoffrey Chaucer's Canterbury Tales.

It is the teacher who puts it all together. Thanks to the teacher, outdoor education theory becomes a reality--a real experience in the lives of real children. Meeting the exhilarating challenge of planning and conducting a well-integrated lesson

in outdoor education demonstrates a high degree of teaching resourcefulness and creativity.

In the Outdoor Learning Laboratories program, the responsibility for instruction rests with the classroom teacher. The teacher, however, is not alone. In several forms, support is available for both the effort to further the child's studies and the effort to enrich his response to nature.

The feeling that his work is moving toward a worthwhile goal is a great support for any teacher, and it is hoped these pages will generate such feeling, for they attempt to spell out methods by which teaching outdoors will in fact bring about significant learning experiences in children. The guiding principles can be summed up very simply: direct many of the child's human powers toward many aspects of the environment. As many of the child's human powers as possible should be stimulated: body and senses, memory, imagination, emotions, mind, and value forming powers. Resources from as many disciplines as possible should be employed: the sciences--natural sciences and social sciences; the humanities--the arts and literature. As far as possible, the deployment of the diverse activities should converge into a unified experience of an environmental object.

The help of the Outdoor Learning Laboratories staff is at the teacher's disposal during planning, during implementation, and during follow-up activities.

The staff will help the teacher evaluate the plan when it is ready; the staff will also help the teacher evaluate the successfulness of the outdoor teaching when it is completed. Evaluation here proceeds by judgment rather than by measurement because the teacher's objectives for his students are experiential rather than behavioral. Although it cannot be quantified, the involvement of children in an experience can be seen; child behaviors, including verbal behavior, facial behavior, and body language, while not in themselves objectives can be observed by the teacher as evidences on which to base judgment of success. Informal exchanges between teachers and staff help clarify these judgments.

In general, the working relationship between teachers and staff persons of the Outdoor Learning Laboratories tends to be informal, personal, and friendly. Recognition of the uniqueness of the outdoor experience and the extraordinary potential it offers children generates mutually shared warmth and enthusiasm; these feelings and attitudes, as much as or more than staff-provided materials and equipment, give the teacher support in the teaching of an outdoor lesson. Many others support the lesson through the staff--SCOPE persons, park site persons, and persons in state and county park commissions.

The teacher will find that inner personal resources will more directly support an outdoor lesson than a classroom lesson. Although outdoors the teacher needs some knowledge in a variety of disciplines and knowledge of outdoor methods, the inner resources most needed are easy to find--they are within the teacher as a human being. Imagination, sensitivity, alertness, warm feeling--these major resources are his own to command. Teaching outdoors means directing not only the children but one's self toward a natural object--responding with one's own body and senses, one's own imagination and feelings, one's own mind and values. In the classroom, one may give one's self; outdoors, one becomes one's self. To actualize one's self as a human being is the way to bring about an experience of the environment in the children and in one's self.

The efforts of the teacher in putting it all together as a whole lesson have the support, most of all, of the natural environment. Children like the open; reality triggers instinctive curiosity. Wide and spacious, whether in Sunken Meadow or another park, the site spreads far toward the ridge or woods that walls away the hurlyburly world; the site offers itself to be experienced without distraction. The site wears its own innocence and willingly shares the unforbidden joy of life. The teacher, like the children, can nourish himself in the garden until the days in it are ended.